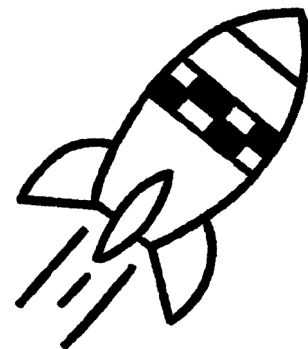


Qaaciidooyin kiimiko (Chemical formulae)

Sayniska

Cutub: Atoms, curiye (elements) iyo isku-dhafaan (compounds)



Natiijo

Waxaan awoodi karaa inaan isticmaalo astaamaha kiimikada (chemical symbols) si aan u qoro qaacidooyin kiimiko (chemical formulae) curiye (elements) iyo isku-dhafaan (compounds).

Erayada muhiimka ah

astaanta kiimikada (chemical symbol)

qaacidada kiimikada (chemical formula)

Erayada muhiimka ah

Astaanta kiimikada (chemical symbol) waa hal ama laba xaraf oo loo isticmaalo in lagu matalo curiye (element) kiimiko. Xarafka koowaad had iyo jeer waa xaraf weyn, tusaale ahaan bromine waa Br iyo carbon waa C.

Qaacidada kiimikada (chemical formula) waa matalaad tirada atoms ama saamiga atoms ee curiye (element) kasta oo ku jira walax, tusaale ahaan H_2O waa biyo (water) oo leh 2 atom hydrogen iyo 1 atom oxygen.

Qaabka casharka

Qaaciidooyin kiimiko (Chemical formulae)



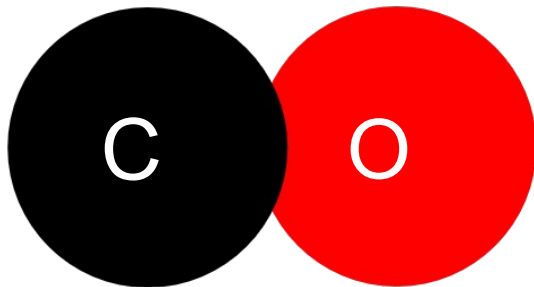
Matalista isku-dhafaan (compounds) iyadoo la isticmaalayo astaamaha kiimikada (chemical symbols)



Kala duwanaanshaha isku-dhafaan (compounds)

Qaacidada kiimikada (chemical formula) ee isku-dhafan (compound) waxay ka kooban tahay astaamaha iyo tirooyinka atom kasta oo curiye (element).

Tusaale ahaan, carbon monoxide, CO, wuxuu ka kooban yahay hal atom oxygen oo ku xidhan (kiimiko ahaan ku biirsan) atom carbon.

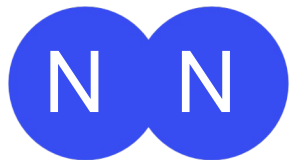


Midabo kala duwan ayaa loo isticmaalaa in lagu matalo atoms kala duwan si aad u kala saari kartid.

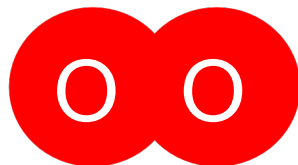
Waxaa jira saami 1:1 ah oo C ilaa O atoms.

Curiyayaal (Elements) ...

waxaa ku jira hal nooc oo atam (atom) ah.



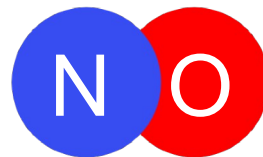
2 atam (atom) nitrogen



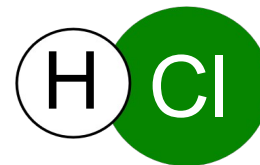
2 atam (atom) oxygen

Xeryo (Compounds) ...

waxay ka kooban yihiin laba ama in ka badan noocyo kala duwan oo atam ah.

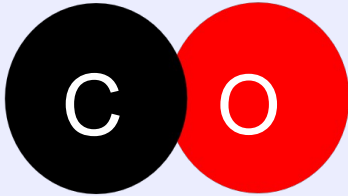


1 atam (atom) nitrogen
1 atam (atom) oxygen

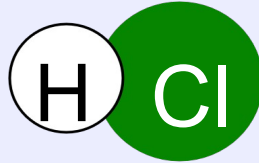


1 atom hydrogen
1 atom chlorine

Kuwee ka mid ah kuwan soo socda ayaa matalaya xeryo (compounds)?



a



b



c



Tirooyinka hoose (subscript numbers) ee qaaciddada (formula) waxay kuu sheegaan inta atom (atom) ee curiyaha (element) ku jira unug (molecule).



laba atom (atom) oo hydrogen ah
hal atom (atom) oo sulfur ah

Saamiga (ratio) 2:1 ee hydrogen ilaa sulfur

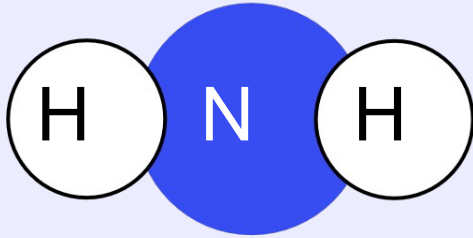


hal atom (atom) oo carbon ah
afar atom oo hydrogen ah

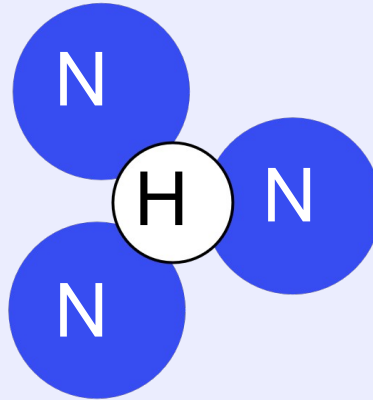
Saamiga (ratio) 1:4 ee carbon ilaa hydrogen

Matixinta xeryahooda iyadoo la adeegsanayo astaamaha kiimikada

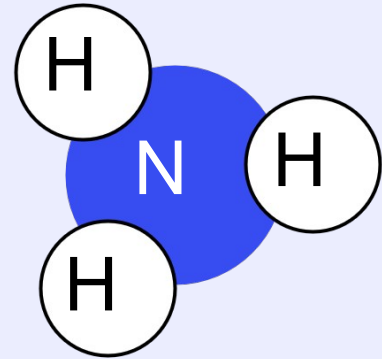
Jaantus kee baa muujinaya ammonia (NH_3)?



a



b



c



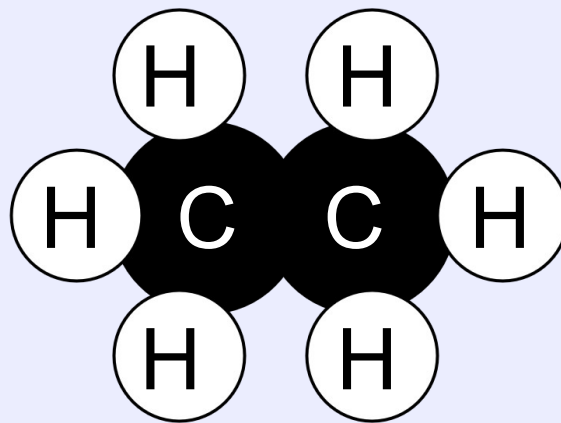
Matixinta xeryahooda iyadoo la adeegsanayo astaamaha kiimikada

Waa maxay qaacidada (formula) xarunta hoos ku muujisan?

a CH₃

b C₂H₆ ✓

c C²H⁶



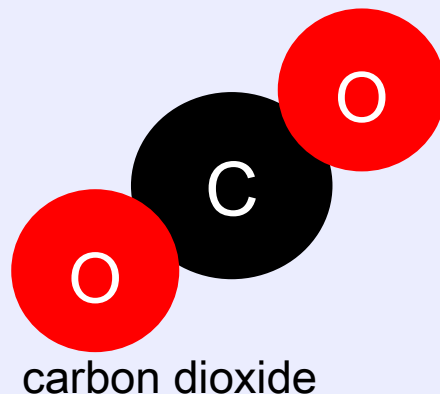
Waa maxay qaacidada (formula) saxda ah ee carbon dioxide?

a CO₂ ✓

b CO₂

c C²O

d C₂O

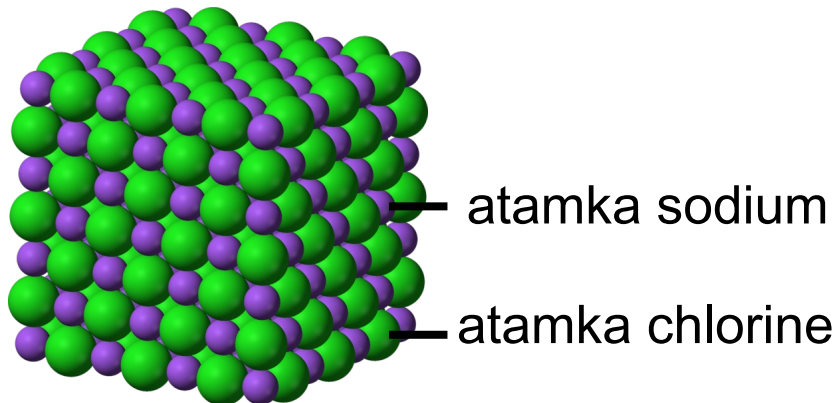


Matixinta xeryahooda iyadoo la adeegsanayo astaamaha kiimikada

Xeryaho qaarkood waxay sameeyaan qaabab waaweyn (giant structures).

Tusaale ahaan:

sodium chloride



$\text{NaCl} = 1:1$ saami

Qaacidada (formula) waxay bixisaa saamiga curiyeyaasha (elements) ee xarunta ku jira.

Buuxi shaxda macluumaadka.

qaacidada xarunta (compound formula)	calaamadaha atamka ee iskudhafka (compound)	tirada nooc kasta oo atam ah ee iskudhafka (compound)	saamiga atamka ee iskudhafka (compound)
KBr	K, Br	1 K, 1 Br	1:1
NaCl			
N ₂ O			
C ₃ H ₈			
CuSO ₄			
	H,S,O		2:1:4

qaciidada iskudhafka (compound formula)	calaamadaha curiyayaasha (elements) ee iskudhafka (compound)	tirada nooc kasta oo atam ah ee iskudhafka (compound)	saamiga curiyayaasha (elements) ee iskudhafka (compound)
KBr	K, Br	1 K, 1 Br	1:1
NaCl	Na, Cl	1 Na, 1 Cl	1:1
N ₂ O	N, O	2 N, 1 O	2:1
C ₃ H ₈	C, H	3 C, 8 H	3:8
CuSO ₄	Cu, S, O	1 Cu, 1 S, 4 O	1:1:4
H ₂ SO ₄	H, S, O	2 H, 1 S, 4 O	2:1:4

Qaabka casharka

Qaaciidooyinka kiimikada (chemical formulae)



Matalida xeryahooda iyadoo la isticmaalayo calaamadaha kiimikada (chemical symbols)

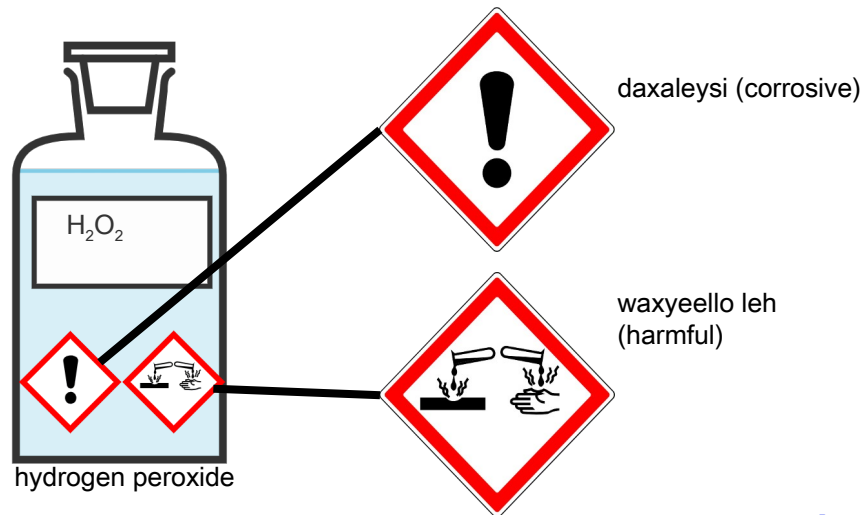
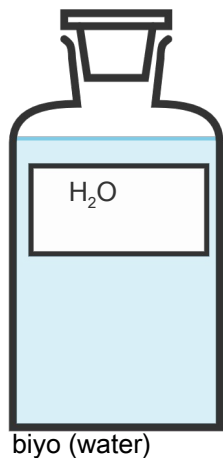


Kala duwanaanshaha xeryahooda (compounds)

Xeryahooda qaarkood waxay ka kooban yihiin atomo isku mid ah kuwa xeryaha kale laakiin saami (ratio) kala duwan.

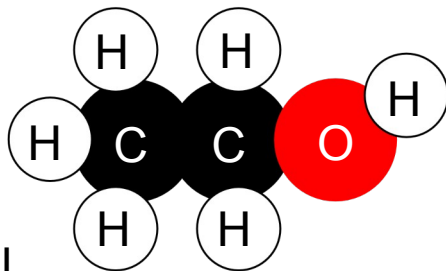
Xeryahan kala duwani waxay yeelan doonaan sifooyin (properties) kala duwan.

Tusaale ahaan: H_2O iyo H_2O_2

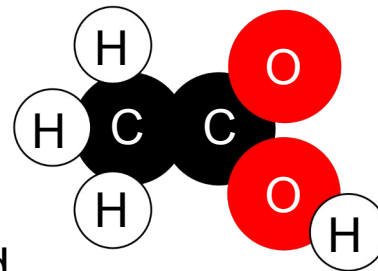


Kala duwanaanshaha xeryahooda (compounds)

Ethanol (C_2H_6O) iyo ethanoic acid ($C_2H_4O_2$) waxay leeyihiin curiyeyaal isku mid ah; carbon, hydrogen, iyo oxygen, laakiin saami (ratio) kala duwan. Maadaama ay yihiin xeryaho kala duwan, sifooyinkooda jireed iyo kiimikada (physical and chemical properties) way kala duwan yihiin.



- bogga karkarinta (boiling point) $78^{\circ}C$
- cufnaanta (density) 0.8 g/cm^3
- guban kara (flammable)



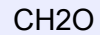
- bogga karkarinta (boiling point) $118^{\circ}C$
- cufnaanta (density) 1.1 g/cm^3
- guban kara (flammable)

Xidhmo (compound) kee (ama kuwa) ayaa ka kooban atam (atoms) isku mid ah oo saami (ratio) kala duwan leh?

a



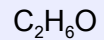
b



c



d



Kala duwanaanshaha xidhmooyinka (compounds)



Run mise been?

Xidhmo (compounds) kala duwan oo ka kooban curiyeyaasha (elements) isku mid ah ayaa had iyo jeer lahaan doona sifooyin kiimiko (chemical) iyo jireed (physical) isku mid ah.



Run



Been



Sabab u sheeg jawaabtaada



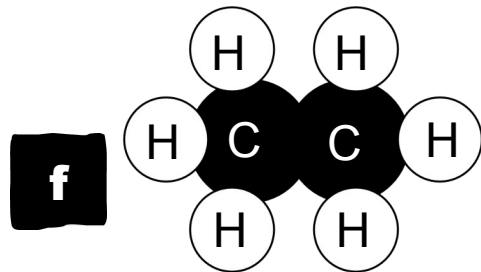
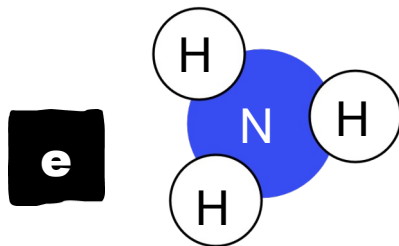
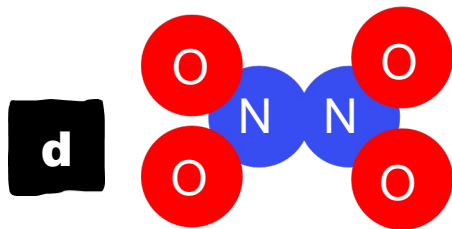
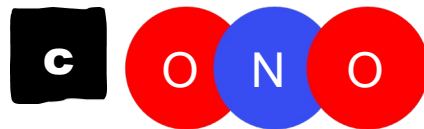
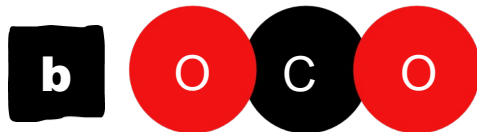
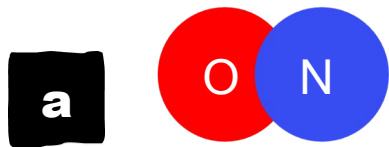
Xidhmo (compounds) leh saami (ratio) kala duwan oo curiyeyaasha (elements) isku mid ah ayaa lahaan doona sifooyin u eg kuwa curiyeyaasha (elements) gaarka ah.



Xidhmo (compounds) leh saami (ratio) kala duwan oo curiyeyaasha (elements) isku mid ah ayaa u dhaqmi doona si kala duwan.



- 1) Saddexda xidhmo (compound) ee ka kooban curiyeyaasha (elements) isku mid ah oo ku xidhan saami (ratio) kala duwan waa kuwee?
- 2) Magacaw curiyeyaasha (elements) ku jira xidhmooyinka (compounds) aad dooratay.
- 3) Qor qaaciidooyinka (formulae) xidhmooyinka (compounds).

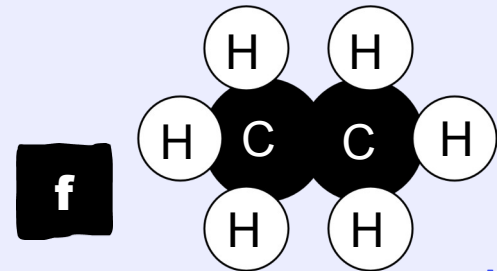
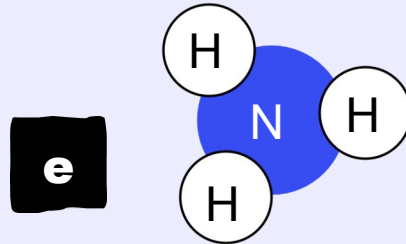
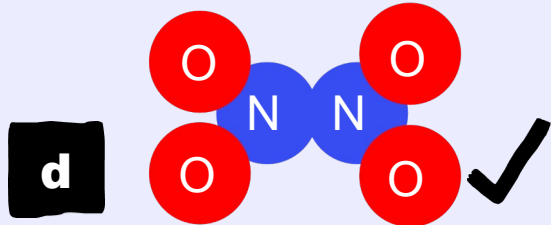
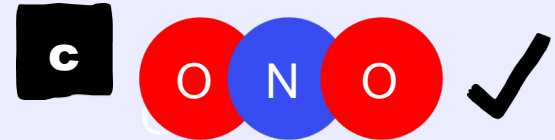
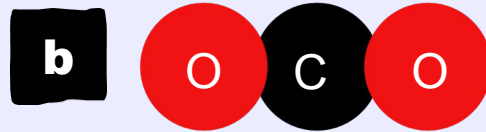
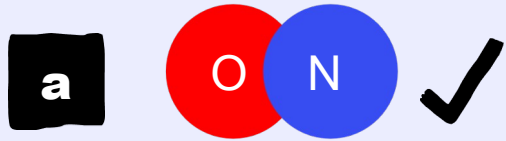


- 1) Saddexda xidhmo (compound) ee ka kooban curiyeyaasha (elements) isku mid ah oo ku xidhan saami (ratio) kala duwan waa kuwee?
2) Magacaw curiyeyaasha (elements) ku jira xidhmooyinka (compounds) aad dooratay.
1) Qor qaaciidooyinka (formulae) xidhmooyinka (compounds).

a, c iyo d

nitrojiin (nitrogen) (N) iyo oksijiin (oxygen) (O)

NO, NO₂, N₂O₄



4) Six fikradaha ardayga ee ku saabsan iskudhisyada (compounds).

Haddii iskudhisyadu (compounds) ay ka kooban yihiin curiyeyaasha (elements) isku mid ah oo saami (ratios) kala duwan, waxay yeelan doonaan astaamo (properties) isku mid ah.

Carbonic acid (H_2CO_3), glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) iyo ethanol ($\text{C}_2\text{H}_6\text{O}$) dhamaantood waxay ka kooban yihiin curiyeyaasha (elements) nitrogen, cobalt, osmium iyo hydrogen.

Nuur



Qaar ka mid ah iskudhisyada (compounds) waxay ka kooban yihiin curiyeyaasha (elements) isku mid ah oo siyaabo kala duwan ugu xiran.



Caasha

Saciid



4) Six fikradaha ardayga ee ku saabsan iskudhisyada (compounds).

Haddii iskudhisyada (compounds) ay ka kooban yihiin curiyeyaasha (elements) isku mid ah oo saami (ratios) kala duwan, waxay yeelan doonaan astaamo (properties) kala duwan.

Carbonic acid (H_2CO_3), glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) iyo ethanol ($\text{C}_2\text{H}_6\text{O}$) dhamaantood waxay ka kooban yihiin curiyeyaasha (elements) carbon, oxygen iyo hydrogen.

Nuur



Qaar ka mid ah iskudhisyada (compounds) waxay ka kooban yihiin curiyeyaasha (elements) isku mid ah oo siyaabo kala duwan ugu xiran (bonded).



Caasha

Saciid



Astaamaha (symbols) curiye kasta (element) oo uu ka kooban yahay walaxdu waxay ka muuqdaan qaacidada kiimikada (chemical formula).

Tirooyinka hoose (subscript numbers) ee qaacidada waxay kuu sheegaan inta atom (atoms) ee curiyaha (element) ku jira molecule-ka.

Iskudhis (compound) kasta oo kala duwan wuxuu ka kooban yahay isku darka curiyeyaasha (elements) oo kala duwan.

Qaar ka mid ah iskudhisyada (compounds) waxay ka kooban yihiin curiyeyaasha (elements) isku mid ah laakiin saami (ratio) kala duwan.